

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Patent Application of:

Jens C. RASMUSSEN et al.

Application No.:

Group Art Unit:

Filed: December 30, 2005

Examiner:

For: **POLARIZATION MODE DISPERSION COMPENSATOR FOR RESET-FREE, ENDLESS POLARIZATION CONTROL WITHOUT REQUIRING REWIND OPERATIONS AND METHOD THEREOF**

**INFORMATION DISCLOSURE STATEMENT**

Commissioner for Patents  
PO Box 1450  
Alexandria, VA 22313-1450

Sir:

In accordance with the duty of disclosure provisions of 37 CFR § 1.56, there is hereby provided certain information, which the Examiner may consider material to the examination of the subject U.S. patent application. It is requested that the Examiner make this information of record if it is deemed material to the examination of the subject application.

1. Enclosures accompanying this Information Disclosure Statement are:

- 1a. ☒ Form PTO-1449.
- 1b. ☒ Copy(ies) of IDS citation(s), except for U.S. Patents and U.S. Patent Application publications.
- 1c. ☒ English language copy of a communication(s) from a foreign Patent Office or a PCT International Search Report.
- 1d. ☐ English language translation (complete, Abstract or relevant portion(s)) attached to non-English language publications as indicated on the attached Form PTO-1449.
- 1e. ☒ Explanations of Relevancy of References (ATTACHMENT 1(e), hereto) for providing a concise explanation of non-English publications.

2. ☐ In accordance with 37 CFR § 1.98, a concise explanation of what is presently understood to be the relevance of each non-English language publication is

(Check appropriate Items 2a, 2b, 2c and/or 2d)

- 2a. ☐ satisfied for the non-English language publication(s) cited on the enclosed "English language version of the search report or action which indicates the degree of relevance found by the foreign office". (See MPEP § 609, Minimum Requirements for an Information Disclosure Statement, Part A(3): Concise Explanation of Relevance, 8th Ed., Rev. 2)

- 2b. ☐ set forth in the application.
- 2c. ☐ satisfied for the non-English language publication(s) indicated on the attached PTO-1449 as having an English language translation (complete, Abstract or relevant portion(s)) attached thereto.
- 2d. ☐ enclosed as Attachment 1(e), hereto.
3. No admission is made that the information cited in this Statement is, or is considered to be, material to patentability nor a representation that a search has been made (other than search report(s) from a counterpart foreign application or a PCT International Search Report, if submitted herewith). 37 CFR §§ 1.97(g) and (h).

Respectfully submitted,

STAAS & HALSEY LLP

Dated: 12/4/15

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By: 

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|   |  |  |                 |
|---|--|--|-----------------|
| FORM PTO-1449   | U.S. DEPARTMENT OF COMMERCE<br>PATENT AND TRADEMARK OFFICE | ATTORNEY DOCKET NO.                              | APPLICATION NO. |
|   |  | 1826.1129  |                 |
|   |  | FIRST NAMED INVENTOR<br>Jens C. RASMUSSEN et al. |                 |
| INFORMATION DISCLOSURE STATEMENT<br>(Use several sheets if necessary) |  | FILING DATE                                      | GROUP ART UNIT  |
|   |  | December 30, 2005                                |                 |

### U.S. PATENT DOCUMENTS

| *EXAMINER<br>INITIAL |    | DOCUMENT<br>NO. | DATE       | NAME            | CLASS | SUB-<br>CLASS | FILING<br>DATE |
|----------------------|----|-----------------|------------|-----------------|-------|---------------|----------------|
|                      | AA | 6,498,886       | 12/24/2002 | Sobiski et al.  |       |               |                |
|                      | AB | 2002/21854      | 02/21/2002 | Bandemer et al. |       |               |                |
|                      | AC | 2002/141680     | 10/03/2002 | Green et al.    |       |               |                |
|                      | AD | 2002/18266      | 02/14/2002 | Ooi et al.      |       |               |                |
|                      | AE | 6,678,430       | 01/13/2004 | Noe et al.      |       |               |                |

### FOREIGN PATENT DOCUMENTS

|  |    | DOCUMENT<br>NO. | DATE       | COUNTRY | TRANSLATION<br>YES NO | ABSTRACT |
|--|----|-----------------|------------|---------|-----------------------|----------|
|  | AF | 2002-532752     | 10/02/2002 | JAPAN   |                       | X        |
|  | AG | 2001-244896     | 09/07/2001 | JAPAN   |                       | Yes      |
|  | AH | 2002-33701      | 01/31/2002 | JAPAN   |                       | X        |
|  | AI | 00/36459        | 06/22/2000 | WIPO    |                       |          |

### OTHER REFERENCES (INCLUDING AUTHOR, TITLE, DATE, PERTINENT PAGES, ETC.)

|  |    |   | TRANSLATION<br>YES NO |
|--|----|---|-----------------------|
|  | AJ | J. Sakai et al., "Degree of Polarization in Anisotropic Single-Mode Optical Fibers: Theory" <i>IEEE Journal of Quantum Electronics</i> , Vol. QE-18, No. 4, April 1982, Pages 488-495.                  |                       |
|  | AK | N.G. Walker et al., "Polarization control for Coherent Communications" <i>IEEE Journal of Light wave Technology</i> , Vol. 8, No. 3, March 1990, Pages 438-458.   |                       |
|  | AL | J. C. Rasmussen et al., "Automatic Compensation of Polarization-Mode Dispersion for 40Gbit/s Transmission Systems" <i>IEEE Journal of Light wave Technology</i> , Vol. 20, No. 12, December 2002.       |                       |
|  | AM | J. C. Rasmussen et al., "Demonstration of Automatic, simultaneous Compensation of PMD and Chromatic Dispersion in a 44x43 Gbit/s Transmission over 6x100km High-PMD SMF" <i>ECOC, Copenhagen, 2002.</i> |                       |
|  | AN | J. C. Rasmussen et al., "Automatic PMD-Compensation at 43 Gbit/s Utilizing an Accurate DOP-Monitor" <i>ECOC, Copenhagen, 2002.</i>  |                       |

EXAMINER

DATE CONSIDERED

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

|  |                          |                 |
|--|--------------------------|-----------------|
| <b>EXPLANATIONS OF RELEVANCY<br/>OF REFERENCES</b> | ATTORNEY DOCKET NO.      | APPLICATION NO. |
|  | 1826.1129                |                 |
|  | FIRST NAMED INVENTOR     |                 |
|  | Jens C. RASMUSSEN et al. |                 |
|  | FILING DATE              | GROUP ART UNIT  |
|  | December 30, 2005        |                 |

1. Reference AF corresponds to Reference AI.
2. Reference AH corresponds to Reference AD.
3. Reference AI corresponds to Reference AE.

## PATENT COOPERATION TREATY

PCT



## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

|  |   |   |  |
|--|---|---|--|
| Applicant's or agent's file reference<br><b>0253398/3513</b> |   | <b>FOR FURTHER ACTION</b> see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, Item 5 below. |  |
| International application No.<br><b>PCT/JP 03/08767</b>      | International filing date (day/month/year)<br><b>10/07/2003</b> | (Earliest) Priority Date (day/month/year)   |  |
| Applicant<br><b>FUJITSU LIMITED</b>                          |   |   |  |

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 4 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

## 1. Basis of the report

- a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ Certain claims were found unsearchable (See Box I).

3. ☐ Unity of invention is lacking (see Box II).

4. With regard to the title,

☐ the text is approved as submitted by the applicant.

☒ the text has been established by this Authority to read as follows:

**POLARIZATION MODE DISPERSION COMPENSATOR AND METHOD THEREOF**

5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No.

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

8  
☐ None of the figures.

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/JP 03/08767

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H04B10/18

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H04B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages  | Relevant to claim No. |
|------------|---|-----------------------|
| X          | US 2002/018266 A1 (ISHIKAWA GEORGE ET AL)<br>14 February 2002 (2002-02-14)<br>cited in the application<br>paragraph '0069! - paragraph '0073!;<br>figure 1<br>--- | 1-11                  |
| X          | US 6 498 886 B1 (WHITING MATTHEW S ET AL)<br>24 December 2002 (2002-12-24)<br>column 10, line 23 -column 11, line 32;<br>figure 5<br>---                          | 1-11                  |
| X          | US 2002/021854 A1 (BANDEMER ADALBERT ET AL)<br>21 February 2002 (2002-02-21)<br>paragraph '0042! - paragraph '0052!;<br>figures 1,2<br>---<br>-/-                 | 1-11                  |

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

### \* Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the International filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the International filing date but later than the priority date claimed

\*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

\*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

\*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

\*Z\* document member of the same patent family

Date of the actual completion of the international search

26 March 2004

Date of mailing of the International search report

02/04/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Ciccarese, C

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/JP 03/08767

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages  | Relevant to claim No. |
|------------|---|-----------------------|
| X          | US 2002/141680 A1 (SMITH JAMES A ET AL)<br>3 October 2002 (2002-10-03)<br>paragraph '0022! - paragraph '0027!;<br>figure 1<br>----- | 1-11                  |
| X          | WO 00 36459 A (SIEMENS AG)<br>22 June 2000 (2000-06-22)<br>the whole document<br>-----  | 1-11                  |

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/JP 03/08767

| Patent document<br>cited in search report |    | Publication<br>date | Patent family<br>member(s) | Publication<br>date |
|---|----|---------------------|----------------------------|---------------------|
| US 2002018266                             | A1 | 14-02-2002          | JP 2002033701 A            | 31-01-2002          |
| US 6498886                                | B1 | 24-12-2002          | US 6556732 B1              | 29-04-2003          |
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